StratEGIC

Strategies for Effecting Gender Equity and Institutional Change

A majority of ADVANCE IT projects in Rounds 1 and 2 distributed resources to individual faculty members to catalyze their scholarly and creative work, support career development, or enhance work/life balance. Other types of faculty development, such as workshops and mentoring, and other uses of grants, such as departmental grants targeting climate, are analyzed separately (see Briefs 1, 3, 11). While individual grants to address work/life issues are discussed here, other Briefs (8, 9) address other types of work/life interventions.

Rationale

Commonly, the rationale behind grants to individuals is to directly support STEM women's professional advancement with resources to enhance their scholarly work and career growth. If women then achieve tenure and thrive at the institution, they may increase the critical mass and step into future leadership roles. Grants may redress inequities in access to research resources—for example, if women are less aware of resources due to exclusion from networks and lack of mentoring, or less likely to press for them due to gendered differences in confidence and negotiation skills. Work/life grants seek to accommodate the dual roles of women who are caregivers, especially early in their careers when lab or field hours are long and children are young. These needs are often gendered because academic women are more likely than men to have partners in the same line of work; in such couples both partners have high job demands.

Purpose

Grant programs typically targeted individuals or collaborative teams to cover research costs, to support career development activities, or to enhance work/life balance. Research awards sought to support individuals' scholarly and creative activities, while career development awards supported faculty to explore new career directions or develop new skills. Grants targeted at work/life sought to enable faculty to maintain or resume research productivity during critical life junctures. Solicitations for faculty grants frequently listed a combination of these categories.

Audience

Most programs offered by Rounds 1 and 2 ADVANCE IT institutions offered research and career grants to female faculty members only. A few were also open to male applicants who demonstrated commitment to the advancement of women in STEM (e.g., by pursuing research on gender issues). Work/life grants often invited proposals from both men and women.

A few programs provided research funding in connection with structured collaborative or mentoring activities, such as Hunter College's Sponsorship program and the University of Montana's Visiting Scholar/Mentor program (see also Brief 3). Finally, some programs targeted collaborative efforts that included women investigators and/or that addressed gender-related issues. The majority of institutions focused on STEM faculty only.

Many of the individual grant programs were open to faculty members at any career stage. Other programs focused on faculty at particular career stages. Programs for tenured faculty targeted those seeking to jump-

start a new career direction or pursue advancement to full professor—whether restarting scholarly work after substantial university service or time away, pursuing a significant change in research direction, or moving into or out of administrative roles. Programs for pre-tenure faculty sought to support their scholarly growth and enhance their tenure prospects.

Models

ADVANCE small grant programs typically targeted one or more among three types of activities. Research and career development were the most common targets for individual grants.

Career development grants supported activities such as

- domestic and international travel funds to visit other laboratories, carry out field work, collaborate with colleagues elsewhere, or attend professional conferences, training courses, or workshops;

- seed money to initiate collaborative research across scientific and engineering disciplines; and

- payment to a sponsor, such as a senior scientist in their research field, to provide early-career faculty with research and career advice.

Research awards focused on covering research or research-related expenses, such as

- equipment, lab space or renovations, materials, and supplies;

- support for student research assistants or postdocs to support faculty research activities;

- expenses for site visit or field work;

- course release time to carry out scholarly work;

- bridge support to enable continuance of research activities between grants; and

- seed grants to support faculty to develop a successful proposal for external funding.

Work/life awards provided support for faculty during major life transitions or during critical times of need, covering needs such as

- released time needed due to childbirth, adoption, care responsibilities for children, elders, or ill family members, major family transitions, or death of a family member; and

- child care expenses (e.g., babysitting, travel costs for a caregiver) to permit faculty to pursue research activities, attend professional meetings, or conduct field work, site visits, or collaborative work.

Individual grant amounts varied anywhere from a few hundred dollars to $54,000 at Columbia University. Two forms of application process were common:

- a competitive process with a set award limit and deadline. These programs set formal application requirements for materials to be reviewed by a committee. Because STEM faculty in particular are accustomed to grant-writing, this model fits academic culture.

- a less formal process of rolling applications reviewed on a case-by-case basis, with varied, often modest, award amounts. This approach was more typical for travel grants and work-life awards, where individuals might not anticipate their needs far in advance.

Factors influencing whether institutions used individual grant programs, and how they were designed, included the following:

- Faculty needs. For example, associate professors who have remained in rank for a number of years are often underserved and may benefit from this type of support (Baldwin, DeZure, Shaw & Moretto, 2008).

- Number of faculty in the targeted group. Can enough awards be made to make a difference for significant numbers of faculty?

- Availability of other campus programs for supporting faculty scholarship or travel

- Desired positive side effects beyond scholarly productivity, such as reducing isolation, providing informal mentoring, and building cross-disciplinary collaborations

A few institutions used individual grants to target a particular problem. For example, the Research Assistantship Program for Current Faculty at the *University of Maryland, Baltimore County,* provided funds to support a graduate research assistant for associate professors close to promotion. By compensating for high service loads or serving as bridge money between grants, the program sought to ensure the success of women STEM faculty moving through promotion.

Examples

Institutions created a variety of small grant programs targeting specific or broad groups for varied purposes. Below we describe a few examples.

The *University of Michigan's* Elizabeth Crosby Research Funds provided broad support to individual STEM faculty on tenure, research, or clinical tracks to meet career-relevant needs that support their retention or promotion. For example, grants provided support for women through difficult pregnancies, sponsored a speaker series on women in mathematics, and supported individual scholars' travel and childcare costs at professional conferences. The program has been institutionalized with a maximum award of $20,000, though most awards are smaller. (http://sitemaker.umich.edu/advance/Crosby_Research_Fund)

The *University of Montana* established a Visiting Scholar/Mentor fund for pre-tenure STEM faculty to build a relationship with a disciplinary mentor off campus by swapping visits. This provided the opportunity to build collaborative relationships with scientists from institutions outside Montana, thus alleviating isolation at a rural campus. While leaders described this as a small part of their overall program, they reported major outcomes for those who received the grants, establishing collaborations and valuable mentoring connections and making good progress on publications and experiments.

Flexibility was key to the *University of Wisconsin-Madison*'s Vilas Life Cycle Professorship program. This grant of up to $30,000 was available to faculty, regardless of divisional affiliation or rank, who encountered critical junctures that affected both their research and personal lives, such as a life-threatening illness and recuperation, caring for elderly parents or children with special needs, or disability of a family member.

Program evaluation identified many positive effects (and no negative ones) on recipients' personal and professional lives, and on the students and staff also at risk when a faculty member faces a life-changing event. Reports credit the Vilas Life Cycle Award with preserving faculty success, decreasing faculty attrition, indirectly supporting staff and students who assist in research activities, and fostering an innovative model in faculty career flexibility (Pribbenow & Benting, 2004). Initially serving women, the Vilas Life Cycle Professorship was extended to men and expanded to serve more awardees and institutionalized with support from an external donor (http://wiseli.engr.wisc.edu/vilas.php).

At *Utah State University*, the Collaborative Grant Support Program provided 6-10 awards of $6000-$8000 each to conduct initial research on a collaborative project that would lead to submission of a proposal to a national funding agency. The program intended to catalyze formation of interdisciplinary research teams that included STEM women faculty. This award was open to tenure-track and research faculty at all ranks.

Project reports noted success in bringing senior women engineers and scientists together with early-career STEM women faculty to create new ideas, build networks, and seed new research initiatives. Collaborations

also helped to break down barriers, improve faculty communication across ranks and disciplines, and stimulate effective, informal peer mentoring. The program led to proposal submissions leveraged diverse faculty skills, expertise, and experience and netted a positive return on investment from larger grants that resulted from these seed monies.

At *Columbia University*'s Lamont-Doherty Earth Observatory, Research Workshop awards enabled early- and mid-career women to convene a research workshop with senior scientists from Columbia and elsewhere. The workshops sought to provide recognition to women as scientific leaders and to stimulate new research collaborations.

Evaluation

Most small grant programs documented applications, awards, and awardee demographics. For evaluation of outcomes, they relied on reports from grant-holders, using a standardized format so that grantees respond to a common set of questions. A simple qualitative analysis of faculty outcomes—documenting publications, presentations, grant proposals, new courses or curriculum materials, as well as affective outcomes such as faculty's sense of being valued by the institution—demonstrated high return on investment and thus was helpful in securing long-term funding for the *University of Colorado Boulder's* Individual Growth grant program (Laursen, 2008, 2009). The program remains in place as the university's Associate Professor Growth Grants (https://facultyaffairs.colorado.edu/leap/associate-professor-growth-grants).

The *University of Maryland, Baltimore County*, collected testimonials from women in its Research Assistantship Program for Current Faculty. These testimonials revealed that funds were critical in successfully assisting several women to achieve tenure or promotion.

Affordances and Limitations

There are pros and cons to offering funds targeted at individual faculty members. These were observed in the context of ADVANCE IT projects in our sample. Affordances reported for various types of individual grant programs include the following:

- *Fast start-up.* Individual grants were reported to be fairly easy to establish. They can offer a quick start to a new ADVANCE project that makes the program known widely across the faculty and is seen to benefit faculty immediately.

- *Bang for the buck.* Small grants in the $5,000-$10,000 range were sufficient to buy out a course and to initiate research projects. Numerous ADVANCE PIs reported that these grants had high return on investment.

- *Political good will.* Individual faculty grants foster good will due to their popularity. PIs reported that faculty and especially department leaders appreciated that resources were shared with faculty.

- *Symbolic value.* For young faculty in particular, winning a competitive award can be career-enhancing. Some institutions hosted an annual celebration that recognized all grantees, celebrating their accomplishments and fostering collegiality.

- *Holistic benefits.* Work/life awards were typically highly valued for their recognition of faculty as whole persons, not just worker bees. In program evaluations, recipients often cited the emotional benefits of feeling recognized and valued, and consequently felt more loyal to the institution. Applicants could apply for support without feeling judged by authority figures in their home units.

- *Collaboration and mentoring.* Collaborative seed grant approaches in particular added value by fostering connections across departments, disciplines, and career stages, benefiting multiple faculty members at once. Programs that supported junior faculty to pursue specific collaborative or mentoring arrangements reported increased scientific productivity as well as positive mentoring in

the discipline, through activities such as review of proposals and manuscripts, invitations to conferences, and contribution of letters to the tenure packet.

Limitation of the small grant model include:

- *Modest circle of impact.* Especially on a large campus, grant funds may not reach far.
- *Focus on individuals rather than systems.* Because grants benefit individuals they may be seen as "fixing the swimmer" rather "draining the pool of inequity." Other programs might address wider-ranging issues faced by the larger faculty community.
- *Resistance.* A few institutions reported resistance from faculty who were ineligible for these awards.

Programs that offered fewer grants of larger dollar amounts reported smaller numbers of people affected, but greater impact to each. Increased administrative attention was required to design and run a program that offered large sums and required more of participants. Smaller grant programs were reported to get off the ground quickly and were institutionalized more frequently.

References Cited

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For Further Reading

Kalivoda, P., Sorrell G. R., & Simpson, R. D. (1994). Nurturing faculty vitality by matching institutional interventions with career-stage needs. *Innovative Higher Education, 18*(4), 255-272.

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